

CLAIMS:

1. Method of determining a parameter relating to image blur in an imaging system (IS), the method comprising the steps of:
 - illuminating an object having a test pattern (MTP) by means of the imaging system (IS), thereby forming an image of the test pattern, the test pattern (MTP) having a size smaller than a resolution of the imaging system (IS), the test pattern (MTP) being an isolated test pattern, the image being blurred,
 - detecting the blurred image, and
 - determining the parameter relating to the image blur from a parameter relating to a shape of the blurred image.
- 10 2. Method as claimed in claim 1, wherein the parameter relating to the shape of the blurred image comprises a blurred point spread function, and the step of determining the parameter relating to the image blur comprises the step of fitting blurred intensity basic functions of the imaging system (IS) to the blurred point spread function.
- 15 3. Method as claimed in claim 2, wherein the step of fitting blurred intensity basic functions of the imaging system (IS) to the blurred point spread function comprises the steps of:
 - calculating sets of blurred intensity basic functions for a set of parameters relating to the image blur, and
 - fitting for each of the parameters relating to the image blur the corresponding set of blurred intensity functions to the blurred point spread function.
- 20 4. Method as claimed in claim 1, wherein a geometrical aberration of the imaging system (IS) is determined from the parameter relating to the shape of the blurred image.
- 25 5. Method as claimed in claim 1, wherein the blurred image is detected by detector means (PR) being situated in a detector plane, the image being formed in an image

plane, a distance between the detector plane and the image plane being subject to stochastic fluctuations, the image blur relating to the stochastic fluctuations.

6. Method as claimed in claim 1, wherein the parameter relating to the shape of
5 the blurred image comprises a mean radius thereof.

7. Method as claimed in claim 1, wherein the imaging system (IS) is a
lithographic apparatus, the object is a mask (MA), and the step of detecting the blurred image
comprises the steps of illuminating a resist layer (PR) by an image of the test pattern (MTP),
10 and developing the illuminated resist layer, thereby forming a pattern relating to the blurred
image.

8. Method as claimed in claim 7, wherein the resist layer (PR) comprises a
chemical component which is activated by the illumination and which diffuses after the
15 activation and before the development, the chemical component changing a solubility of the
resist layer, the image blur relating to the diffusion of the chemical component.

9. Method as claimed in claim 7, wherein the step of illuminating the resist layer
is executed at a first exposure dose and at a second exposure dose different from the first
20 exposure dose.

10. Method of designing a mask pattern for use in a lithography process,
comprising the steps of:
- providing a desired mask pattern,
25 - determining the parameter by means of the method according to claim 7, and
- calculating the mask pattern from the desired mask pattern and the parameter,
thereby obtaining the designed mask pattern.

11. Computer program for use in the method as claimed in claim 1, the computer
30 program comprising instructions for causing a programmed device to execute the step of
determining the parameter relating to the image blur from a parameter relating to a shape of
the blurred image.

12. Device for determining a parameter relating to image blur in an imaging system (IS), the device comprising means for determining the parameter relating to the image blur from a parameter relating to a shape of the blurred image.